

S. S. PAPADOPULOS & ASSOCIATES, INC.
ENVIRONMENTAL & WATER RESOURCE CONSULTANTS

INVOICE

Client:

US Environmental Protection Agency

RTP Finance Center
 (AA216-01)
 109 TW Alexander Drive
 Durham, NC 27711
 Mr. Daniel Olsson

Invoice #:	24138
Date:	3/15/2022
Project Name:	EPA R5: Hydrogeologic Synthesis & Modeling Support
Project #:	1725

Comments:

GSA Contract #GS-10F-0462M
 Order No.: 68HE0520F0029

Remit Payment To: S. S. Papadopoulos & Associates, Inc.
 1801 Rockville Pike - Suite 220
 Rockville, MD 20852
 Phone: (301) 718-8900

For Services Rendered Through 2/28/2022

002-01-10 - 0001AB-Union Carbide Corporation Superfund Site

Professional Services

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Associate			
Spiliotopoulos, Alexandros	■	■	\$1,182.68
Technician/Draftsperson			
Pekoske, Kristen M	■	■	\$57.82
Labor Subtotal	■		\$1,240.51
Item Subtotal			\$1,240.51

003-01-10 - 0001AC-St. Regis Paper Company Superfund Site

Professional Services

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Associate			
Spiliotopoulos, Alexandros	■	■	\$90.98

Pekoske, Kristen M			\$77.10
Labor Subtotal			\$168.08
Item Subtotal			\$168.08

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004-00-10 - 0001AD-Pristine Superfund Site**Professional Services**

<u>Employee Type</u>	Hours	Rate	Amount
Sr. Project Hydrogeologist/Sci			
Karanovic, Marinko	██	██	\$366.02
Perozo, Erica L. DiFilippo	██	██	\$1,024.87
Sorel, Dominique	█	██	\$73.20
Technician/Draftsperson			
Pekoske, Kristen M	██	██	\$96.38
Labor Subtotal	██		\$1,560.49
Item Subtotal			\$1,560.49

005-01-10 - 0001AE-Chemical Recovery Systems Superfund Site**Professional Services**

<u>Employee Type</u>	Hours	Rate	Amount
Principal			
Tonkin, Matthew J	█	██	\$173.48
Sr. Project Hydrogeologist/Sci			
Sorel, Dominique	██	██	\$3,513.84
Technician/Draftsperson			
Pekoske, Kristen M	██	██	\$520.42
Labor Subtotal	██		\$4,207.75
Item Subtotal			\$4,207.75

008-01-10 - 0001AH-Hedblum Industries Superfund Site**Professional Services**

<u>Employee Type</u>	Hours	Rate	Amount
Principal			
Rafferty, Michael T	██	██	\$2,313.00
Tonkin, Matthew J	█	██	\$173.48
Associate			
Neville, Christopher	██	██	\$181.95

Sr. Project Hydrogeologist/Sci			
Sorel, Dominique			\$4,904.74
Technician/Draftsperson			
Pekoske, Kristen M			\$134.92
Labor Subtotal			\$7,708.10
Item Subtotal			\$7,708.10

009-00-10 - 0001AI-SE Rockford**Professional Services**

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Sr. Hydrogeologist/Sci.			
Bedekar, Vivek S			\$1,453.41
Sr. Project Hydrogeologist/Sci			
Sorel, Dominique			\$5,929.60
Labor Subtotal			\$7,383.02
Item Subtotal			\$7,383.02

010-00-10 - 0001AJ-Forest Waste Superfund Site**Professional Services**

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Sr. Hydrogeologist/Sci.			
Mihm, Kathleen			\$1,776.39
Sr. Project Hydrogeologist/Sci			
Karanovic, Marinko			\$1,830.12
Prj. Hydrogeologist/Sci.			
Shannon, Rachel			\$665.25
Staff Hydrogeologist/Sci.			
Nelson, Leah I			\$4,659.30
Technician/Draftsperson			
Pekoske, Kristen M			\$134.92
Labor Subtotal			\$9,066.00
Item Subtotal			\$9,066.00

012-02-10 - 0001AL - Verona Wells - OU2**Professional Services**

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Principal			
Tonkin, Matthew J			\$115.65
Associate			

Spiliotopoulos, Alexandros			\$7,096.05
Sr. Project Hydrogeologist/Sci			
Karanovic, Marinko			\$4,831.53
Sorel, Dominique			\$3,074.61
Prj. Hydrogeologist/Sci.			
Cousins, S. James			\$465.68
Karanovic, Zdravka			\$1,862.70

Project 1725 EPA R5: Hydrogeologic Synthesis & Modeling Support

Invoice 24138

Sr. Staff Hydrogeologist/Sci.

O'Connell, Matthew T			\$5,030.34
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Technician/Draftsperson

Pekoske, Kristen M			\$38.55
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Labor Subtotal			\$22,515.11
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Item Subtotal			\$22,515.11
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013-01-10 - 0001AM - Hagen Farm

Professional Services

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
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Associate

Spiliotopoulos, Alexandros			\$2,001.45
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Prj. Hydrogeologist/Sci.

Cousins, S. James			\$399.15
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Staff Hydrogeologist/Sci.

Pokale, Aditya			\$1,242.48
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Technician/Draftsperson

Pekoske, Kristen M			\$96.38
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Labor Subtotal			\$3,739.46
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Item Subtotal			\$3,739.46
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014-01-10 - 0001AN - Springfield

Professional Services

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
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Principal

Andrews, Charles B			\$346.95
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Sr. Project Hydrogeologist/Sci

Perozo, Erica L. DiFilippo			\$7,759.73
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Prj. Hydrogeologist/Sci.

Shannon, Rachel			\$266.10
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Staff Hydrogeologist/Sci.

Adams, Glen			\$880.09
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Nelson, Leah I			\$388.28
Technician/Draftsperson			
Pekoske, Kristen M			\$366.22
Rutledge, Devon R			\$77.10
Labor Subtotal			\$10,084.48
Item Subtotal			\$10,084.48

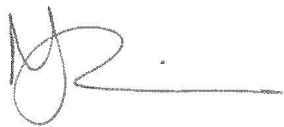
015-00-10 - 0001AO - Bendix

Professional Services

<u>Employee Type</u>	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
Principal			
Tonkin, Matthew J	██	██	\$404.78
Associate			
Spiliotopoulos, Alexandros	██	██	\$181.95
Sr. Project Hydrogeologist/Sci			
Karanovic, Marinko	██	██	\$219.62
Perozo, Erica L. DiFilippo	██	██	\$5,124.35
Prj. Hydrogeologist/Sci.			
Cousins, S. James	██	██	\$2,927.10
Technician/Draftsperson			
Pekoske, Kristen M	██	██	\$424.05
Labor Subtotal	██		\$9,281.85
Item Subtotal			\$9,281.85
Invoice Amount			\$76,954.85

Project Summary

<u>Budget</u>	<u>Previously Billed</u>	<u>Current Billing</u>	<u>Billed To Date</u>	<u>Budget Remaining</u>
\$2,621,272.47	\$1,345,488.82	\$76,954.85	\$1,422,443.67	\$1,198,828.80



Matthew J. Tonkin
 Project Manager
 S.S. Papadopoulos & Associates, Inc.
 505 N. Pine St., Williamsfield, IL 61489-9517
 Web: www.sspsa.com // Email: matt@sspsa.com // Skype: mattsspsa

S.S. PAPADOPULOS & ASSOCIATES, INC.
ENVIRONMENTAL & WATER-RESOURCE CONSULTANTS

Site Specific Detail Report

EPA TASK ORDER #: 68HE0520F0029

GSA Contract #GS-10F-0462M

Inv. #24138

Reporting Period: 11 February 2020 through February 28, 2022

subClin	Site/Project Title	Job Number			Current Charges	Cumulative Charges
		SSID	Action Code	OU	Inv. #24138	
0001AA	Ottawa Township Flat Glass Superfund Alternative Site	B5A7	NK	03	\$ -	\$ 66,113.59
0001AA	Ottawa Township Flat Glass Superfund Alternative Site	B5A7	NK	04	\$ -	\$ 66,113.59
0001AB	Union Carbide Corporation Superfund Site	05F4	BF	02	\$ 1,240.51	\$ 70,949.44
0001AC	St. Regis Paper Company Superfund Site	05J2	OM	00	\$ 168.08	\$ 76,093.65
0001AD	Pristine Superfund Site	0556	ME	05	\$ 1,560.49	\$ 283,211.06
0001AE	Chemical Recovery Systems Superfund Site	0521	BE	01	\$ 4,207.75	\$ 173,325.94
0001AE	Chemical Recovery Systems Superfund Site	0521	BE	02	\$ -	\$ 1,425.36
0001AF	Lemberger Landfill Superfund Sites	053E	FE	00	\$ -	\$ 1,127.60
0001AG	Lemberger Transport & Recycling Superfund Site	05J4	FE	00	\$ -	\$ 7,562.15
0001AH	Hedblum Industries Superfund Site	05E9	ME	01	\$ 7,708.10	\$ 60,232.45
0001AI	SE Rockford Superfund Site	05DK	OM	02	\$ 7,383.02	\$ 142,204.22
0001AJ	Forest Waste Superfund Site	05D5	BF	02	\$ 9,066.00	\$ 157,308.50
0001AK	Motor Wheel Disposal Superfund Site	05S5	BF	01	\$ -	\$ 72,726.51
0001AL	Verona Well Field Superfund Site	0551	TA	01	\$ -	\$ -
0001AL	Verona Well Field Superfund Site	0551	TA	02	\$ 22,515.11	\$ 53,259.45
0001AM	Hagen Farm Superfund Site	053C	ME	02	\$ 3,739.46	\$ 28,231.92
0001AN	Springfield Township Dump Superfund Site	05A7	OM	01	\$ 10,084.48	\$ 66,867.35
0001AO	Bendix Superfund Site	05AS	TA	01	\$ 9,281.85	\$ 95,690.89
Total					\$ 76,954.85	\$ 1,422,443.67

1725_summary table thru 022822.xlsx



S.S. PAPADOPULOS & ASSOCIATES, INC.
ENVIRONMENTAL & WATER-RESOURCE CONSULTANTS

EPA Region 5 Support
Description of Services Performed
Period of Performance:
Through February 2022

Services were performed by the following SSP&A staff:

1725-002-01-10 0001AB-Union Carbide Corporation Superfund Site

Staff	Hours
Alexandros Spiliotopoulos	
Kristen Pekoske	

During this period, A. Spiliotopoulos reviewed the updated 2020 annual GWMR, summarized comments on the Aquifer Assessment Report, and prepared for and joined a call with UCC/EPA on the aquifer assessment. Finally, he joined calls with C. Moynihan. K. Pekoske worked on the monthly report and joined the monthly internal call.

1725-003-01-10 0001AC-St. Regis Paper Company Superfund Site

Staff	Hours
Alexandros Spiliotopoulos	
Kristen Pekoske	

During this period, A. Spiliotopoulos reviewed well completion information. K. Pekoske filed documents and added them to Endnote. She also worked on the monthly report.

1725-004-01-10 0001AD-Pristine Superfund Site Systems

Staff	Hours
Erica Perozo	
Dominique Sorel	
Marinko Karanovic	
Kristen Pekoske	

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During this period, E. Perozo worked on a memo summarizing the 1/31/2022 call, joined two conferences calls regarding data gaps: one with GHD and one with EPA, and joined a call with EPA and the PRP. D. Sorel reviewed the memo. M. Karanovic joined two conference calls: one with GHD and another regarding data gaps. K. Pekoske worked on the monthly report.

**1801 ROCKVILLE PIKE, SUITE 220, ROCKVILLE, MARYLAND 20852-1649 • TEL. (301) 718-8900 FAX (301) 718-8909
www.ssipa.com • e-mail: mtonkin@ssipa.com**

1725-005-01-10 0001AE-Chemical Recovery Systems Superfund Site

Staff	Hours
Dominique Sorel	████
Matthew Tonkin	████
Kristen Pecoske	████

During this period, D. Sorel worked on the split sampling report. She addressed questions from M. Tonkin, finalized the report, and transmitted it to EPA. Finally, she addressed comments from EPA and initiated update of the draft split sampling report. M. Tonkin reviewed and commented on the split sampling report and results and corresponded with D. Sorel regarding next steps. K. Pecoske filed documents and added them to Endnote. She corresponded with D. Sorel, formatting tables and an appendix for the split sampling report, and reviewed and formatted the draft split sampling report. Finally, she worked on the monthly report.

1725-008-01-10 0001AH-Hedblum Industries Superfund Site

Staff	Hours
Christopher Neville	████
Dominique Sorel	████
Michael Rafferty	████
Matthew Tonkin	████
Kristen Pecoske	████

During this period, C. Neville discussed vapor sampling with D. Sorel. D. Sorel joined calls with EPA and EGLE, had an internal discussion with C. Neville regarding vapor sampling, joined a pre-call with the agencies, and joined a call with the PRP group and Agencies. She also had an internal discussion with M. Rafferty and M. Rogers regarding vapor intrusion (VI) sampling sequence and parameters and drafted a VI sampling framework. Additionally, D. Sorel updated the VI framework with addition of pressure testing and reviewed EPA and ITRC VI references. D. Sorel sent a first draft of the VI framework to EPA, and then updated and sent a new draft of the VI framework to EPA. Finally, she corresponded with EPA and EGLE, joined the biweekly call with the PRP, reviewed the EPA letter regarding the VI investigation framework, and filed documents. M. Rafferty worked on the VI sampling plan, reviewed documents and the work plan, joined calls with the agencies, and revised the plan. M. Tonkin reviewed and commented on the VI memo, corresponded with D. Sorel on questions raised regarding the approach, and discussed the recommended approach with M. Rafferty. K. Pecoske

filed documents and added them to Endnote. She also worked on the monthly report and reviewed the VI sampling framework memo.

1725-009-01-10 0001AI-SE Rockford

Staff	Hours
Vivek Bedekar	████
Dominique Sorel	████

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During this period, V. Bedekar met with D. Sorel and M. Tonkin and worked on unit plume modeling. He also updated the report section related to the 2-layer model and Appendix G of the report for the 6-layer model. D. Sorel worked on finalizing the draft report and transmitting it to EPA, adding in the discussion about the model; worked to update the water-level maps; and worked on the figures and tables.

1725-010-01-10 001AJ-Forest Waste Superfund Site

Staff	Hours
Marinko Karanovic	
Kathleen Mihm	
Leah Nelson	
Rachel Shannon	
Kristen Pekoske	

During this period, M. Karanovic updated the geology in EVS, kriging vinyl chloride (VC) and 1,4-dioxane 3D plumes. He also joined a group conference call, updated the 3D plumes, and prepared and sent files to D. Wilson. K. Mihm made updates with the new data and had internal discussions. She worked on the GWD files, joined a conference call, reviewed data, reviewed the GWD files and the interpretation of the plume and transport, worked on water-levels, reviewed the topographic map flow direction, and prepared the draft memo and figures. L. Nelson worked on VC and 1,4-dioxane updates and detection limits in the database, worked on EVS with M. Karanovic, updated the database with R. Shannon, joined a meeting with EPA, and checked the GWD file. She made additional updates to the database for chemical modeling, joined another EPA meeting, and worked on a memo on database work. R. Shannon worked on database updates/QA and queries for 3D plume mapping. K. Pekoske worked on the monthly report.

1725-012-02-10 0001AL - Verona Wells - OU2

Staff	Hours
Alexandros Spiliotopoulos	
Marinko Karanovic	
Dominique Sorel	
S.J. Cousins	
Zdravka Karanovic	
Matthew O'Connell	

Matthew Tonkin	
Kristen Pekoske	

During this period, A. Spiliotopoulos worked on water-level mapping, COC statistics, plume mapping, and calculations and summaries for the Five-Year Review (5YR). He made updates to the statistics calculations and prepared material and slides for the 5YR presentation to EPA. He also joined the monthly meeting, joined a review call with M. Tonkin and D. Sorel, and finalized the PPTX file and trend plots for the meeting with EPA. He joined the call with EPA, made edits to the calculations, and spent additional time on water-levels and the plume map. Finally, A. Spiliotopoulos updated the plume

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mapping, conducted water-level mapping tests, made capture frequency maps, preformed dam evaluations for water-levels, compared compliance vs. sampling frequency, reviewed the monitoring plan for sampling frequency, and worked on city well data. M. Karanovic worked on water-level mapping and capture analysis, prepared input data for kriging, worked on plume mapping, reviewed water-level maps and capture zones, and updated plume maps. He also discussed plume and water-level mapping with A. Spiliotopoulos, revised the water-level mapping and capture zones, and ran final water-level mapping with and without control points. D. Sorel addressed a question from A. Spiliotopoulos, communicated with Z. Karanovic regarding the database and well construction, addressed questions regarding statistical analysis of the data, ran PAM tests, and conducted a QA/QC of the data. She also worked on V-13 and V-36 addition to the database and analysis, communicated internally with the project team, worked on plume extents, participated in a call with EPA discussing trend and plume map extents, reviewed past project files regarding well installation recommendations and particle tracking, and calculated pumping rates. S.J. Cousins updated the database with additional wells and worked on spatial analysis – composite. Z. Karanovic conducted a 5-year data check and updated the database. M. O’Connell worked on trend calculations, reviewed data, worked on trend figures/plots and tables, updated trend plots for the compliance well, cleaned up the script input, and implemented prediction intervals and partial regressions. M. Tonkin joined calls and discussions regarding plume definition, capture extent, and interpretation of remedy effectiveness. K. Pekoske worked on the monthly report.

1725-013-01-10 0001AM - Hagen Farm

Staff	Hours
Alexandros Spiliotopoulos	1
S. James Cousins	1
Aditya Pokale	1
Kristen Pekoske	1

During this period, A. Spiliotopoulos reviewed the QAPP/WP for Air Sparge and corresponded with A. Pokale for the QAPP review. He also corresponded with S. Sullivan, reviewed the 2021 Annual Report and Shutdown Assessment reports, and prepared a summary .pptx of his review for S. Sullivan. Finally, he made additions to the summary, including gas concentrations and trends. S.J. Cousins worked on spatial analysis/spatial data. A. Pokale reviewed the Annual Report, work plan, and QAPP documents to identify potential gaps. K. Pekoske filed, added documents to Endnote, and worked on the monthly report.

Staff	Hours
Erica Perozo	████
Rachel Shannon	████
Glen Adams	████
Leah Nelson	████
Charles Andrews	████
Kristen Pekoske	████



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Staff	Hours
Devon Rutledge	

During this period, E. Perozo worked on the CSM memo. She also prepared slides for a call with EPA, EGLE, and PRP, and joined a call with EPA. R. Shannon reviewed the memo. G. Adams made edits to figures and produced new figures. L. Nelson reviewed the draft CSM memo and joined a meeting with EPA. C. Andrews reviewed and discussed the report. K. Pekoske worked on the monthly report, compiled appendices for the CSM memo, and reviewed the CSM memo. D. Rutledge added documents to Endnote.

1725-015-01-10 0001AO – Bendix

Staff	Hours
Erica Perozo	
Alex Spiliotopoulos	
S. James Cousins	
Marinko Karanovic	
Matthew Tonkin	
Kristen Pekoske	

During this period, E. Perozo joined calls with EPA regarding the hydraulic gradient memo and made edits to the hydraulic gradient memo. A. Spiliotopoulos discussed water-level mapping, groundwater flow, and plume mapping/migration with E. Perozo. S.J. Cousins worked on spatial analysis/figures and formatted and extracted spatial data. M. Karanovic prepared a paragraph about particle tracking and reviewed and updated the hydraulic gradient memo. M. Tonkin reviewed documents and the revised hydraulic gradient memo in response to EPA comments. He also corresponded and joined a call with E. Perozo to discuss resolution of comments and technical approaches to mapping and gradient analyses. K. Pekoske filed, added documents to Endnote, and worked on the monthly report. She also updated appendices, reviewed, and compiled the hydraulic gradient memo.

S.S. PAPADOPULOS & ASSOCIATES, INC.

Summary completed by:

Summary reviewed by:

Handwritten signature of Dominique Sorel in black ink.

Dominique Sorel
Alternate Project Manager

Handwritten signature of Matthew Tonkin in black ink.

Matthew Tonkin
Project Manager